(۱ $\tan(-2\pi^{\circ} + \frac{\pi}{4}) = 1 = B \quad T = \frac{\pi}{|a|} = \frac{\pi}{|-2|} = AC \quad \frac{\frac{\pi}{2}\times 1}{2} = \frac{\pi}{4}$

(۲ $x^2 - \sin x - \frac{1}{4}\cos^2 x = 0 \longrightarrow x = \frac{2}{3}$

$\frac{4}{9} - \frac{2}{3}\sin\alpha - \frac{1}{4}\underbrace{\cos^2\alpha}_{1-\sin^2\alpha} = \frac{4}{9} - \frac{2}{3}\sin\alpha - \frac{1}{4} + \frac{1}{4}\sin^2\alpha =$

$\frac{1}{4}\sin^2\alpha - \frac{2}{3}\sin\alpha + \frac{7}{36} = 0 \Rightarrow 9\sin^2\alpha - 24\sin\alpha + 7 = 0 \quad \frac{24 \pm 18}{18} \nearrow \frac{42}{18} \times \;\; \searrow \frac{1}{3}$

$\sin\alpha = \frac{1}{3} \Rightarrow \cos^2\alpha = \frac{8}{9} \Rightarrow 1 + \tan^2\alpha = \frac{9}{8}$

(۳ $\log^{\sin\alpha} - \log^{-\cos\alpha} = \log^{3} \Rightarrow \frac{\sin\alpha}{-\cos\alpha} = 3 \Rightarrow \sin\alpha = -3\cos\alpha$

$\sin^2\alpha + \cos^2\alpha = 1 \Rightarrow \sin^2\alpha = \frac{1}{10} \Rightarrow \sin\alpha = \frac{1}{\sqrt{10}} \quad \frac{1}{\sqrt{10}} + \frac{1}{3\sqrt{10}} = \frac{4}{3\sqrt{10}}$

(۴ $(\underbrace{\sin^2\theta}_{1-\cos^2\theta})^2 + \cos^2\theta = \frac{4}{5} \Rightarrow 1 + \cos^4\theta - 2\cos^2\theta + \cos^2\theta = \frac{4}{5}$ $\quad (-\cos^2\theta)$

$\cos^2\theta = a \Rightarrow a^2 - a - \frac{1}{5} = 0 \Rightarrow 5a^2 - 5a - 1 = 0$

$\frac{5 \pm 3\sqrt{5}}{10} \quad 1$

(۵ $\frac{\sin^2\alpha}{\cos\alpha} - \frac{1}{\cos\alpha} > 0 \Rightarrow \frac{\sin^2\alpha - 1}{\cos\alpha} > 0 \Rightarrow \cos\alpha < 0$

$\frac{\sin(3 + \cos\alpha)}{2 - \cos\alpha} < 0 \Rightarrow \frac{\sin\alpha(3 + \cos\alpha)}{2\sin^2\alpha} < 0 \Rightarrow \sin\alpha < 0$

ناحیه سوم

Subject:
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$\frac{2}{\sin\alpha} + \frac{3}{\cos\alpha} = 0 \Rightarrow \frac{2\cos\alpha + 3\sin\alpha}{\sin\alpha\cos\alpha} = 0 \Rightarrow 2\cos\alpha + 3\sin\alpha = 0$ (9

$\cos\alpha = \frac{-3\sin\alpha}{2}$ $\tan\alpha + \cot\alpha = \frac{\sin\alpha}{-\frac{3}{2}\sin\alpha} = -\frac{2}{3} - \frac{3}{2} = -\frac{13}{6}$

$\sqrt{\frac{1+\sin 20}{\sin 20 + \sin 10}} \Rightarrow 1 + \sin 20 = \sin 90 + \sin 20 = 2\sin 70 \times \cos 50$ (7

$= 2\cos^2(70) \times \cos^2 70 = 2\cos^4 70$

$\sin 20 + \sin 10 = 2\sin 70 + \cos 50 \Rightarrow \frac{\sqrt{2}\cos 70}{\cos 70}$ $\sqrt{2}$

$\cos^2 20 - \sin^2 20 = \frac{\cos 10}{2\cos^2 10 - 1}$ $-\sin^2 10 + \cos^2 10 = \frac{}{\cos 20}$ (8

$\frac{1-\tan^2 20}{1+\tan^2 20} = \cos 40$ $\cos 10 * \cos 50 * \cos 40 + \frac{\sin 10}{\sin 10}$

~~$\sin\alpha \cdot 2\cos\alpha = 2 \Rightarrow \sin\alpha$~~ $3\cos\alpha = 2 - \sin\alpha$ (9

$12\cos\alpha = 8 - 4\sin\alpha$

$5\underbrace{\cos^2\alpha}_{1-\sin^2\alpha} - 5\sin^2\alpha - 8 + 4\sin\alpha = -3 + 4\sin\alpha - 10\sin^2\alpha$

$-10\sin^2\alpha + 4\sin\alpha - 3$

$\sin\alpha\sin\beta = \frac{1}{2}(\cos(\alpha-\beta) - \cos(\alpha+\beta)) \Rightarrow \sin\beta \cdot \sin C$ (10

$\frac{1}{2}(\cos\alpha(B-C) - \cos(B+C))$

$\cos\alpha - \cos\beta = \frac{1}{2}(\cos(\alpha+\beta)) + \cos(\alpha-\beta) + \cos\frac{\alpha}{2} * \cos\frac{\alpha}{2} = \frac{1}{2}(\cos A + 1)$

$A+B+C = 180$ $\frac{1}{2}\cos A + \frac{1}{2} = -\frac{1}{2}\cos(C+A) + \frac{1}{2}\cos A \Rightarrow \cos(C+A) = -1$

$\Rightarrow 2C + A = 180$ $A = 180 - 144 = 36$

$C + B = 72$

PAYCO